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THE WEST AFRICAN POCKET BOOK

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HOOVER INSTITUTION
on War, Revolution, and Peace

FOUNDED BY HERBERT HOOVER, 1919

THE

WEST AFRICAN POCKET BOOK.

A GUIDE FOR NEWLY-APPOINTED GOVERNMENT OFFICERS.

Compiled by direction of the Secretary of State for the Colonies.

PROVISIONAL EDITION.

LONDON:
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1905.

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2A

Corrections and suggestions for the improvement of this book will be welcome at any time, and may be sent direct to the Colonial Office.

GENERAL NOTES ON WEST AFRICA.

The British possessions in West Africa are the Gambia, Sierra Leone, the Gold Coast (including Ashanti and the Northern Territories), Lagos, Southern Nigeria, and Northern Nigeria. Lagos and Southern Nigeria are in course of amalgamation.

The Gambia is a strip of territory on the banks of the river of that name, as large as Devonshire and Cornwall together, with a population of about 90,000. Sierra Leone is as large as Scotland, with a population of about a million. The Gold Coast, with Ashanti and the Northern Territories, is nearly equal in area to England and Scotland, and has a population roughly estimated at two millions. Lagos is as large as Scotland, with a population of three millions. Southern Nigeria is as large as England, and has a population of about three millions. Northern Nigeria is as large as France and Italy together; its population can only be guessed, but is possibly about twenty millions.

The number of European officials in each is at present (1905) approximately as follows:—

Gambia	30
Sierra Leone	120
Gold Coast	400
Lagos	200
Southern Nigeria ...	300
Northern Nigeria ...	500

All these possessions lie within the tropics. Owing to their great extent much variation of climate is met with, but considerable heat is general, as there are no very elevated tracts, and on the coast and near it the climate is also very moist. The climate should be

regarded with at least as much respect as would be given to that of the less developed parts of India, and officers should study how life may be made comfortable and healthy under the conditions they are likely to meet with. The general standard of comfort attained by Europeans in West Africa is not equal to that reached in India, but individuals can do much to raise it if they will take the necessary trouble.

The seasons of the year are divided into the wet and and the dry, and there is no cold season, except in Northern Nigeria. In the Gambia and Sierra Leone the dry season lasts from November to April or May. In the Gold Coast the dry season lasts from December to March, and is followed by tornadoes in April and May. The rainy season lasts from June to November, usually with a break in August and September. In Lagos and Southern Nigeria the seasons are similar to those on the Gold Coast. In Northern Nigeria they are similar, but the dry season is cooler and at times cold.

The Harmattan, a dry dusty wind, blows from the Sahara during the dry season.

OUTFIT AND PREPARATIONS IN ENGLAND.

The health and comfort of an officer largely depend on his taking out from England a satisfactory kit, which need not however be a large one. Details of the various articles required will be found in Appendix A, but it may be repeated here that no one should fail to take out an efficient mosquito net, a tropical sun hat, a white umbrella (or a black one with a white cover), and some quinine. All officers in Southern and Northern Nigeria and all others who are at all likely to have to travel by land will require to take camp outfit, except tents, which will be supplied by the Government when required. Such officers should remember that 50 lbs. or at most 60 lbs. is the heaviest load that can be borne by one carrier, and that everything must be bought and packed subject to this consideration. Accordingly they will do well to limit their baggage to the smallest possible compass and to the lightest possible weight. Those to whom economy is an object should beware of buying everything which the outfitter suggests as necessary, but, on the other hand, nothing is saved by omitting essential articles which will have to be bought later in West Africa at much higher prices.

Table crockery and cutlery, table linen, pots and pans and kitchen cloths, are required, except in Southern Nigeria, and bed-clothes must always be taken out.

It is generally economical and often necessary to take out some provisions.

When making his preparations in England an officer should get all his packages together and take them with him as personal luggage. This will cost a little more than sending them by goods train to the Shipping Agents, but it is much more satisfactory. Before now it has happened that an officer's baggage, *having* been sent in good time, went deep into the hold

of the ship and had cargo piled upon it, with the result that when the officer came to go ashore he could not get his bed or any of the other things he wanted. Another risk is that some mistake may occur on the part of the Railway Company or the Shippers, and that when the passenger gets to the ship an hour or so before she sails he may find that his packages are not on board, and that no one knows anything about them. It is not a serious inconvenience at Liverpool to have a number of packages; there are registered out-door porters who take passengers' luggage from the railway station to the landing stage for a charge of 6d. per package.

If goods must be sent on by goods train before the officer, it is best to address them to the cloak-room at the railway station and to send a covering letter to the stationmaster. The officer can then get them on arrival and proceed with them to the ship.

An officer should provide himself with a list of his packages on a card or strong piece of paper which will stand the wear and tear of frequent handling and replacing in the pocket.

VOYAGE OUT AND ARRIVAL IN WEST AFRICA.

Never be parted from your Mosquito Net.

The systematic use of quinine should be commenced the day before touching the West African coast, and kept up during residence in West Africa and for at least six months after return to Europe, unless an officer is medically advised to do otherwise. Inability to take quinine should be regarded as an absolute bar to residence in tropical Africa.

The systematic use of quinine may be followed in whichever of the three following ways may best suit the individual :—

1. Five grains every day (recommended).
2. Ten grains on Sundays and Wednesdays.
3. Fifteen grains on the 10th and 11th, 20th and 21st, and 30th and 31st (or last two) days in each month.

The best time to take the five-grain doses is just before the "big" breakfast. When the larger doses are adopted it is best to take them after dinner, so that the buzzing in the ears and deafness which are likely to follow may occur during sleep and rest, and not during the day, when they might prove troublesome.

By consulting the rainfall tables in Appendix F, the kind of weather to be expected on landing can be gauged with fair accuracy. If the rains are on, it is necessary to have accessible a mackintosh, an umbrella, and strong boots.

The landing is made in boats. In the cases of the Gambia and Sierra Leone there is no difficulty. At the *Gold Coast* there are usually large rollers which break

on the shore, making considerable surf. There is generally some water in the bottom of the surf boats: you should watch to see that the box best able to withstand the wet goes into the boat first. Always see all your luggage put in one surf boat and go to the shore in the same boat yourself. When the surf boat arrives at the beach two of the native paddlers will quickly lift the passenger out and place him beyond the reach of the next incoming wave; the other paddlers do their best to carry out all the packages without allowing them to get wet, but it is necessary for going through the surf to have tightly closing boxes, otherwise water may enter. Nothing should be loose. A mackintosh should be worn for landing as a protection against spray, even if it is not raining. If the sun happens to be shining the umbrella will be found useful, as the distance from the ship to the shore is frequently half-a-mile or more.

At Lagos, and sometimes at Forcados, a transfer has to be made to a smaller steamer—a "branch boat"—which is capable of crossing the large sandbanks or bars which are found at the mouths of the rivers and harbours. It is wise to see that on these boats all baggage and the like is placed under cover of an awning or similar shelter, and so protected from the sun or rain.

Officers going to Northern Nigeria are recommended to engage a native servant at Forcados, or at one of the ports which they will touch at before reaching Forcados.

MALARIA.

"Form the Anti-Mosquito Habit."

Only precautionary measures are dealt with under this head. Directions for the treatment of malarial fever, when no doctor is available, will be found in Appendix E.

Malarial fever is a disease caused by the bite of a particular kind of mosquito (*Anopheles*), when the individual mosquito that bites is itself infected by the disease. The bite of a non-infected *Anopheles* cannot cause malaria. Only the females bite.

This disease has been subjected to a great amount of scientific investigation during the last few years, and has become associated particularly with the names of Sir Patrick Manson, K.C.M.G., M.D., and Professor Ronald Ross, C.B.

The former had shown that certain mosquitoes carried the germ of another disease.* From this and from what was already known concerning malaria he was led to suspect that malaria might be transmitted by mosquitoes. Professor Ross, after examining various mosquitoes in order to test this supposition, was able to show that there was great probability of its being correct.

* Filariasis (minute worms in the blood.)

Sir Patrick Manson then clinched the matter by two experiments described by him as follows:—

"Finally, on behalf of the Colonial Office and the "London School of Tropical Medicine, with the "assistance of Dr. Sambon and Dr. Low, I insti- "tuted two experiments which dispose for good "and all of any objections that otherwise might "have been advanced against the theory. Dr. "Sambon and Dr. Low, Signor Terzi, their servants "and visitors lived for the three most malarial "months of 1900 in one of the most malarial "localities of the Roman Campagna, Ostia, in a "hut from which mosquitoes were excluded by a "simple arrangement of wire gauze on the doors "and windows. They moved freely about in the "neighbourhood during the day, exposed them- "selves in all weathers, drank the water of the "place, often did hard manual work, and beyond "retiring from sunset to sunrise to their mosquito- "protected hut, took no precautions whatever "against malaria. They took no quinine. "Although their neighbours, the Italian peasants, "were each and all of them attacked with malaria, "the dwellers in the mosquito-proof hut enjoyed an "absolute immunity from the disease. Whilst "the experiment was in progress mosquitoes, *fed* "*in Rome on patients suffering from malaria*, were "forwarded in suitable cages to the London School "of Tropical Medicine, and on their arrival were "set to bite my son, Dr. P. Thurburn Manson, "and Mr. George Warren. Shortly afterwards "both of these gentlemen, neither of whom had "been abroad or otherwise exposed to malarial in- "fluences, developed characteristic malarial fever, "and malarial parasites were found in abundance "*in their blood* both at that time and on the occur- "*rence of several* relapses of malarial fever from "*which they* subsequently suffered.

EUROPEAN'S HOUSE UP COUNTRY.

SHOWING THE WINDOW ON THE RIGHT MADE MOSQUITO-PROOF BY USE OF MUSLIN; A BARRIER AT THE DOOR AGAINST SNAKES, BECAUSE THE HOUSE IS SO CLOSE TO THE GROUND; AND A WATER-TANK WITH A MOVEABLE RAIN-SPOUT, SO THAT THE FIRST WASHINGS FROM THE ROOF AFTER DRY WEATHER CAN BE DIRECTED AWAY FROM TANK. A MOSQUITO-PROOF PORCH WOULD BE A USEFUL ADDITION.

> "The Mosquito-Malaria theory has now, there-
> "fore, passed from the region of conjecture to that
> "of fact."

These two experiments satisfied the medical world, and, since they were performed, a mass of information has been acquired which confirms them again and again.

It is a simple expedient to have mosquito-proof houses, and to remain in them as much as possible during the period from sunset to sunrise, and it might be thought that West Africa would be a place where mosquito-proof houses were to be found in abundance. But this, chiefly owing to the influence of the "Old Coaster," is not yet the case. The "Old Coaster" is a man who, through the accidents of a constitution exceptionally suitable to West Africa, and a certain amount of good luck, has succeeded in remaining many years on the Coast, and has come, and rightly so, by virtue of the work which he has done, into a senior position. Having passed through the ordeal of living on the coast under the adverse circumstances of ten or twelve years ago, he is often, and not unnaturally, unable fully to appreciate the necessity of precautions against malaria for the great majority of Europeans in West Africa.

A new-comer to West Africa must, therefore, be prepared to meet men who have no belief in the new discoveries and experiments above mentioned, but he is warned not to allow their influence to dissuade him from taking essential precautions.

The chief of these are :—

1. **Always carefully to use a good large mosquito net kept in thorough repair.**

2. **To take quinine systematically.**

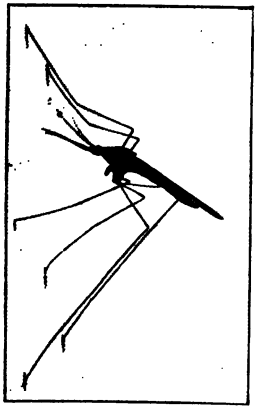
3. **To destroy mosquitoes and clear away their breeding places round the house** as far as possible.

Further details as to these precautions will be found under other heads of this pamphlet.

A mosquito has the same kind of life history as a silk-worm or butterfly. A female mosquito will lay about 250 eggs or more at a time on or close to water. In a day or two, there comes out of each egg a small creature (the larva) which swims about in the water eating minute plants, &c., and comes to the surface of the water to breathe. This stage corresponds to the silk-worm or caterpillar. In about a fortnight the larva turns into a shrimp-like creature, which moves with great rapidity through the water by means of its curved thin tail-portion, and which breathes by coming to the surface of the water as the larva did. This shrimp-like creature is the pupa, and corresponds to the chrysalis stage of the silk-worm or butterfly. From the pupa, in the course of a few days, the imago or mature insect—the mosquito—emerges.

There are several kinds of mosquito which differ from one another in appearance and habits. Although only one kind carries malaria, it is well to wage war against all mosquitoes, because nearly all can carry some disease or other.

There are two tribes of mosquito very common in West Africa, the *Culex*, which is the kind most frequently seen and heard, and the *Anopheles*, which *can carry the malaria* germ. See the illustrations *opposite page 15.*



ANOPHELES (FEMALE).

CULEX (FEMALE).

MOSQUITOES.

PUPA OF EITHER SPECIES, ON RIGHT, WHICH HAS EMERGED FROM SKIN OF LARVA, ON LEFT.

CULEX, ON LEFT, AND ANOPHELES, ON RIGHT, LARVÆ IN WATER.

[*These Diagrams are three times the natural size.*]

The differences between these two are as follows:—

	Anopheles.	*Culex.*
Eggs.	Lying flat and scattered on water, almost always in *natural* pools.	Floating vertically in a mass on water anywhere, in water tanks, cups, &c., as well as natural pools.
Larva.	Lying flat when at the surface of water	Hanging down at an angle from the surface of water.
Pupa.	Similar in both species.	
Imago.	Has tail end pointing in air when resting on flat surface, makes little or no sound when flying.	Has tail end parallel to surface it rests on, "sings" when flying.

In the males, the antennæ are bushy in both kinds. In the females, two small processes, one on each side of the proboscis, called the palps, are short in *Culex* and long in *Anopheles*. The *Anopheles* of West Africa has short dark bars on the front edges of the wings; the *Culex* has no special markings on the wings.

Among the many tribes of mosquitoes there is a family, *Stegomyia*, the members of which will be easily distinguished by their general appearance. They are striped black and white, and suggest a football costume. This is the mosquito which can transfer yellow fever from the sick to the healthy.

Everyone going to West Africa should make it his business to learn how to distinguish between *Anopheles*, *Culex*, and *Stegomyia*, and how to find and destroy them and their larvæ.

The importance of making war on all mosquitoes cannot be too strongly emphasised. From the life history of the mosquito, already described, it will be

seen that the insect can be most easily attacked in its water stage. This can be done by **permitting as little standing water as possible round dwelling-houses.**

Any small pools that cannot be drained or filled in should have a little cheap, thin oil (kerosene will do) poured on their surfaces once a week. The oil makes it difficult for the mosquito to cling to the surface of the water, and it also gets into the insect's breathing apparatus and chokes it.

Water tanks and the like must be carefully looked after; the ordinary lids scarcely ever fit with sufficient exactness to prevent mosquitoes from entering and breeding. Over the lids it is easy to fit canvas bags filled with sand, and this will be found to be one of the best ways of closing the apertures round the badly fitting lid of an iron tank. Water barrels should have a sheet of canvas placed over the top and fastened to the staves by short nails. The pipes and holes which enter the tank, for the purpose of letting water in or out, must be carefully attended to and sealed when not in use with wire gauze, sand bags, canvas, or other means which will prevent mosquitoes from entering.

The edges of any river, small stream, or ditch, near a house must be carefully cut and trimmed so as to prevent the formation of little stagnant pools and back waters in which *Anopheles* would readily breed.

All gutters should be kept clear of grass and weeds, as it is found that *Anopheles* shelters among them.

It is astonishing how soon a mosquito, and especially a *Culex*, makes use of any water it may find to breed in. It is usually necessary to stand each leg of a meat safe or table, on which jam, sugar, and the like are kept, in small tins of water in order to prevent ants from eating the food, &c. *Culex* always breeds in these tins if the water is not completely changed once a week, or

vinegar or something acting similarly added to it. Again, *Culex* will breed in the small cups of water used to keep a wet bulb thermometer moist, or in a water jug left in quarters which have been vacated for a short time, or in a water cooler which is not regularly emptied. An officer may go into the bush travelling for a fortnight or more, and when he comes back, if the water jug has not been emptied, he will often find his rooms full of mosquitoes.

It is, however, the *Anopheles* mosquito which is the more serious danger. There are two species which are common in West Africa, one brown, the other black-looking, and both of these, as already mentioned, usually breed only in pools of water which form naturally. Collections of water in manufactured vessels can, however, after a time take on the peculiarities of natural pools, *e.g.*, if a new canoe gets some water in it after a shower of rain, *Anopheles* will not, as a rule, grow in this, although *Culex* will; but in the case of an old canoe, or a new one which has been left by its owner in one place for a couple of months, moss, grass, &c., accumulate round the sides of the contained water, and for all practical purposes the canoe forms a natural pool in which *Anopheles* will breed. They will also breed in the big wooden mortar in which natives beat up and mix their food, if this article is left for two or three weeks where water can get into it; and in a country where most journeys are made on foot it is no uncommon thing for a canoe or a house to be left uncared for during two months or more.

In the case of bamboo cut midway between two joints and stuck vertically into the ground to make railings or fences, the top of the stick forms a little cup and will hold water in which *Anopheles* will breed. It might be thought that such a small collection of water would dry up quickly; but, in the rains, grass and other vegetation are apt to grow up sufficiently high to

protect the top of the fence from the sun, and also from heavy downpours of rain which would wash out the larvæ.

These are only a few examples of how water can collect and in time become a breeding place for mosquitoes. Everyone who looks about carefully will find many others. For example, the spouting round the roof of a European house may sink between two supporting hooks and form a cavity where water and débris can collect. A large leaf which in the dry season has had its edges curled up, like leaves in autumn in England, may be so lying when a shower of rain comes as to collect water and form a pool; mosquitoes have often been found breeding in such a pool.

Puddles, if exposed, may be dried up by the direct rays of the sun or washed out by a heavy downpour of rain, or the concussion of the drops of rain on the surface may seriously damage the larvæ, although these creatures can defy both sun and rain for a time by living in the mud at the bottom of a pool.

It is not, however, exposed pools that are the difficulty. They can be seen, and it is only crass folly not to deal with them. The difficulty is in finding out-of-the-way collections of water near fences, forks or roots of trees, and old drains, which often have long grass round them. Accordingly all grass and vegetation should be removed for sixty yards at least round a European dwelling house, and grass and bush beyond this kept cut close to the ground for as great a distance as possible.

Instructions similar to the above have been given and are well known in most of the West African stations, but it is not unusual to find that they have not been carried out.

Clearing grass and bush, however, takes time, and in *a new bush station* it is imperative to have some *protection against mosquitoes* immediately on arrival.

An officer may take with him a portable mosquito-proof shelter in which he can sit and sleep. If he does not do this he should have a house made mosquito-proof. This can be done temporarily and quickly by fastening muslin over the window-openings and doorways, and also, if the house be a native one, from the top of the walls to the adjacent roof, between which, in native houses, there is always a space.

A more satisfactory and permanent method is to cover the window-openings with wire gauze, and to construct a mosquito-proof porch. The windows covered should be as large as possible. The porch should have a gauze door at each end. Any mosquitoes which have come in with a person will then probably stop in the porch and can be killed there. Failing a porch, doorways may be protected by two weighted curtains of muslin, so arranged as to allow a person to pass through the door by separating them, care being taken after passing through that they meet and cover the door. These curtains can be fixed to the top and sides of the doorway by nails.

Mosquito-proof houses and rooms have been objected to on the ground that they are stuffy; but stuffiness is avoided when the windows, &c., covered with gauze or muslin are sufficiently large. A mosquito-proof house can be made very light and airy when the building is a suitable one.

On sunny days the doors and windows should be opened. On dull days *Culex*, if breeding near, is liable to get in if the house is opened, although *Anopheles* will never be seen after 6.30 a.m. or before 6 p.m. unless the house is absolutely and closely surrounded by bush.

In a mosquito-proof room, really kept free from mosquitoes, no mosquito-net is required over the bed. *When a man* is resident in a mosquito-proof house,

has not been previously infected, and does not go out at night, he may dispense with quinine: but these conditions are rarely fulfilled, and it is in nearly all cases much safer to continue the use of quinine.

Finally, any site selected for a European's house should be on high land, at least a quarter and preferably half a mile distant from a native town, without any resort of native children in the neighbourhood, and when possible not closely surrounded by bush. Where the bush is thick the levels cannot be seen and it is not easy to decide which is the highest ground; the best plan is to choose the ground which keeps driest at the height of the rainy season. But if the highest land is near a swamp, it is preferable to build the house on somewhat lower ground, and to have a good clearing between it and the swamp.

The ideal site is on or near the top of a hill, a mile at least from any swamp.

A most important fact, always to be borne in mind in travelling or in selecting a site for a house, is that the principal source from which the mosquito obtains the malaria parasite is the native children. Practically all native children may be regarded as infected with malaria, and therefore all *Anopheles* in native houses should be regarded with the greatest suspicion, and the neighbourhood of native houses or native children should as far as possible be avoided for European houses or camps.

SITE OF EUROPEAN HOUSE.

BAD, BECAUSE TOO CLOSELY SURROUNDED BY BUSH.
MUCH IMPROVEMENT COULD BE EFFECTED BY EXTENSIVE CLEARING.

[Reproduced by kind permission of the African Society.]

PERSONAL HYGIENE.

"Prevention is better than Cure."

The diseases and ailments chiefly to be guarded against in West Africa are malaria, dysentery, jiggers, prickly heat, and dhobie itch. These diseases and ailments are all caused by the presence of a special animal or vegetable parasite. A low condition of health predisposes to attacks by these parasites; therefore everything that tends to strengthen the body should be encouraged, and everything that tends to weaken the body avoided.

The sun, the wind, and the rain are three elements which may damage the body from without and so make it more susceptible to the attacks of parasites.

It is of paramount importance to **wear a helmet when in the sun,** and when possible to use a white umbrella (lined). Even if the sun is somewhat obscured by a haze, it is still necessary to wear a helmet.

The high temperature of the air causes the body to perspire after but little exertion, and even when not perspiring the body always has, in hot climates, a great volume of blood circulating just under the skin; consequently, if the wind blows strongly, the body, unless protected by suitable clothing, may lose a considerable amount of heat suddenly, and so have its vitality lowered. Similarly as regards rain, wettings are more liable to cause chills than in temperate climates.

Chills often induce attacks of fever in persons whose blood contains malaria germs.

Accordingly, a helmet, white umbrella (lined), flannel suitings, and a mackintosh are essential, and indiarubber boots are very useful. These articles cannot always be obtained on the coast.

The three classes of essential precautions against malaria have been mentioned under that head. Two of them fall also under the head of personal hygiene.

1. Always carefully to use a good large mosquito net kept in thorough repair.

2. To take quinine systematically.

With regard to the first precaution, even the smallest holes in the net must be promptly mended, and the bottom of the net must be properly tucked in between the canvas of the bedstead and the mattress or blanket upon which the sleeper will lie. The practice, usual in some places, of having the net weighted at the bottom and allowing its bottom edge to lie on the floor is a bad one, because mosquitoes often shelter in the day under the bed, and when the net is turned down at night they are inside it and attack the sleeper. Where there are mosquito rods or a frame above the bed, the net should be inside the rods or frame. It is no uncommon thing to see a man who imagines that he is getting the benefit of a mosquito net when his net contains one or more holes or is not accurately arranged round the bed at its lower part. It may be caught up on a chair or pair of boots and so leave ample space for mosquitoes to get in. The details of the mosquito net are discussed in Appendix A.

With regard to the second precaution, the advice given on page 9 should be most carefully attended to. The **bi-hydrochloride** of quinine is one of the best preparations. It is best taken dissolved in water. The tablets should be wrapped in paper and crushed, and will then dissolve readily in a quarter of a small tumblerful of water.

It is very important to have the bi-hydrochloride of quinine, as the bisulphate is not nearly so soluble as the bi-hydrochloride. Euquinine, which is tasteless

MOSQUITO NET.

IN POSITION ON CAMP BED, TUCKED IN BETWEEN THE MATTRESS AND THE CANVAS OF THE BED.

but more expensive, may be used instead of the bi-hydrochloride. Information about euquinine will be found in Appendix A.

Officers are specially warned of the danger of taking tablets dry like a pill. After a while tablets often become hard, do not dissolve in the stomach, and are excreted unchanged. The result is that the quinine does not enter the system, and that the germs of malaria are not killed off when they get into the blood.

Some Old Coasters think that if a man takes quinine every day the drug will lose its effect on him, and that he will therefore be in a sorry plight if he does get fever. The newcomer may rest assured that there is no foundation for this belief.

A man's system is, as a rule, quite clear of a five-grain dose of quinine in less than twenty-four hours, and it is for this reason that a frequent dose is so important.

It is wise to give personal servants a ten-grain dose of quinine once or twice a week, both for their own benefit and to prevent them from infecting their masters with fever.

Dysentery and other troubles are avoided by drinking only water that has been boiled, and by taking care that all soups, tea and coffee, &c., are made with boiling water,

Sometimes radishes and the like are grown by Europeans and eaten raw as is the custom in England, but in all such cases water that has boiled must be used to wash the vegetables.

A pinch of permanganate of potash or some Condy's fluid should be put into the bath water, and plenty of *carbolic* soap should always be used. The object of

this is to kill small fungi or even worms which might otherwise cause skin diseases. It is desirable, when possible, to use boiled water for washing. Bath water should be just warm, as cold baths are more liable to cause chills than in England, and hot baths induce sweat.

Jiggers are most plentiful in sandy places. They are sand fleas which eat into the skin, usually about the toe-nails. They can be avoided by never walking about in bare feet and always keeping boots at a height above the floor when not in use, by having the bedroom floor polished with beeswax and turpentine, and by seeing that it is thoroughly swept daily. On getting into bed men often leave their slippers on the floor at the bedside; the next morning they thrust their feet into the slippers and proceed to dress, thinking that by wearing the slippers they will escape jiggers. But jiggers will walk into a slipper while on the ground empty. Slippers therefore should be placed on a chair by the side of the bed. Boots should be kept high on the top of boxes or hung by the tabs to nails in the wall.

Jiggers which have penetrated the skin must not be neglected. A description of how they can be removed is given in Appendix E.

Dhobie Itch is a skin disease usually but probably erroneously attributed to clothes becoming infected at the wash. Clothes may be thus contaminated in the rainy season, when there is little or no sun to dry them. Whether this is so or not, it is proper to insist that no native's clothes should be washed at the same time as a European's. The Europeans at a station usually pay the washerman a substantial salary, and it is only fair that their washing should be kept distinct from any native's washing he may get.

If this complaint is caught when returning to England, two or three sulphur baths can be taken, and will almost always effect a cure.

Officers should note the caution against sitting unprotected in the open air after six in the evening, given under the head "Work and Amusement," and the advice as to water and alcoholic drinks, given under the head "Food and Drink."

CARE OF QUARTERS.

All furniture should be at least a foot from the wall of the room so that a servant can fan and dust behind it every day. If heavy furniture is placed close to the wall, as is usual in England, mosquitoes, &c. will hide behind it during the day. If clothes are hung on a wall they should be completely covered by a white cloth reaching to the ground, in order that mosquitoes may not hide in them.

The following rules, among others, apply to official quarters in Lagos and will be useful for the guidance of officers in other parts of West Africa :—

(1.) The occupant is responsible for the care and cleanliness of the quarters and compounds; the former should be adequately cleaned at least once a fortnight, and the latter swept and cleaned at least three times a week. (It is advised that thorough dry-scrubbing, with a little bees-wax and turpentine, be adopted as the method of cleaning boarded floors.)

(2.) Window glass should be cleaned at least once a week; and jalousies frequently.

Jalousies should be opened and worked daily. (They are a favourite haunt of mosquitoes in the day-time.)

(3.) Responsibility for the care and cleanliness of furniture rests with the officer to whom it is issued and who has signed for it on the inventory form.

(4.) (i.) No rubbish, offal, or dirty water of any description, should be thrown on the surface of the ground in the neighbourhood of a well for a distance of at least 10 yards from the latter.

(ii.) To prevent leaves and dirt from being blown into the well by wind, the cover of the well should always be shut down except when water is actually being drawn.

(iii.) Tanks should be most carefully examined, at least once a month, and cleaned out if there is evidence of the slightest contamination by any vegetable or other substance.

(iv.) The first rain-water from a roof, after a period of dry weather, should not be allowed to enter the tank.

(v.) Tanks must be kept free from mosquitoes (*i.e.*, they must be made mosquito-proof, and kept so).

See under the head "Malaria" for directions as to how to do this, and how to keep down mosquitoes in the neighbourhood of dwelling-houses.

FOOD AND DRINK.

Never eat tinned food if you can get fresh.

In West Africa chickens are the chief fresh animal food, but they are very small. A good plan is to buy a number of live chickens, according to the size of the place they are to be kept in, and to give them a small feed once a day of rice, maize, or other grain. In a month they are much better eating, and well repay the trouble.

In many places the natives are unwilling to sell eggs because they prefer to keep them, either for sale in the more profitable form of chickens, or for use as offerings to the dead. Tinned eggs have been recently imported from England.

Beef, mutton, and goat-flesh, can often be obtained.

West African yams are large potato-like tubers and are of two kinds. Both are of a yellowish white inside, and the smaller of the two kinds has a pink layer just below the skin. The larger are called yams simply, and the smaller coco-yams; the former are the better eating.

On the coast potatoes can be bought from the ships.

The pawpaw looks like a small vegetable marrow, but grows on a tree. When ripe it is eaten as a fruit; and when unripe it can be boiled and served like a vegetable marrow, from which when properly cooked it is practically undistinguishable.

There are several other vegetables which grow in West Africa. The best way to find them is to enquire of some intelligent native. For example, certain kinds of leaves, such as the young leaves of the coco-yam, can *be chopped up fine* and served like spinach.

Banana, orange, pineapple, and certain kinds of plum, are common. Mango, guava, &c., grow in some places.

When travelling, biscuits may be used in the place of bread, but, when stationary, bread is easy to make (see recipes in Appendix D).

Beef should be firm, of a deep red colour, not flabby, sodden, or watery. The flesh should consist only of meat fibres, fat, and gristle. There must be no minute white spots on or between the meat fibres.

Goat meat is paler in colour than beef and there is not much fat as a rule, otherwise it should be much the same as beef.

It is very important to know that a beast intended for food was slaughtered and that it did not die from disease. This can be seen from inspection of the carcase before it is cut up.

A humane way to kill a bullock is to have the animal tied up by the head close to a tree or post, and then to shoot it with a revolver. The revolver should be held about six inches from the centre point of the frontal bone, *i.e.*, midway between the upper border of the eye socket and the lower border of the horn of the opposite side. The animal falls unconscious at once. It should be bled five minutes afterwards.

Fish is usually plentiful and good on the coast.

With regard to drink, water and palm wine are the two beverages of the country. Palm wine should not be drunk unless it has been seen collected, otherwise it is very likely to have been mixed with water from some infected pool or stream.

Water is the most wholesome drink; it may be filtered, and must always be boiled. It is important to use a filter of the best kind, and to have it cleaned and examine it not less frequently than once a month. *The Berkefeld* or the Pasteur-Chamberland can be

recommended, but the ordinary carbon filters are worse than useless. The filtering can be left to a servant, but the European should always go daily and **see that the water is actually boiled.** The vessel of boiled drinking water should then be covered up and placed to cool on a piece of wood in a soup plate full of water, to keep it free from ants.

Water, if muddy, should first be strained through a piece of linen, such as a handkerchief. If it is still thick and difficult to filter, it can be placed in a large basin and a little alum added to it, six grains to the gallon being the usual quantity. The alum causes all the fine particles in the water to sink to the bottom of the basin in about six or eight hours. Some people add a little lime also.

It is necessary to distinguish between straining water to get rid of solid matter suspended in it, and sterilising it to make it free from germs. It is difficult to keep any filters free from germs, and accordingly **water should be first filtered and afterwards boiled.**

Alcoholic drinks, if taken, should be consumed only at meals, and preferably at the evening meal. **Heavy drinkers should not go to West Africa, moderate drinkers should be very moderate there, and total abstainers should remain so.**

For a short list of suitable tinned foods and for cooking recipes, see the Appendices A and D.

BERKEFELD PUMP FILTER, WITH STIRRUP.

VESSEL FOR BOILING WATER AND KEEPING IT PROTECTED FROM ANTS.

TRAVELLING AND BUSH LIFE.

In certain parts of tropical West Africa, a considerable amount of travelling is done on rivers by means of steam launches or native canoes.

When travelling in a canoe it is very important that Europeans should have an awning, at least two mats thick, over them to shelter them from the sun. The natives can easily arrange an awning by means of sticks cut in the adjacent bush.

Should a tornado be about to break, shelter must be taken in the bush, or at least the mat awning must be removed, otherwise there is grave risk of the canoe capsizing. The removal of the awning is necessary on such occasions in all small boats.

Land travelling is done on foot, in hammocks, and, in some parts of the interior, on horseback. There are railways in Sierra Leone, the Gold Coast and Lagos.

To prevent blistered feet on the march, avoid tight boots and rub some nearly dry soap on the feet before starting; some people prefer vaseline or hazeline.

Loads must be kept within about 50 lbs., which, as has already been said, is the heaviest weight an average carrier can manage.

In getting ready for a march, the first thing to do is to have all the loads arranged in one line, about six feet from one another. The carriers are then chosen according to their strength and placed beside their loads. The strongest carrier should always be given the bed, mosquito net, and bedding. At the same time, it is very important that the bed load should be kept as light as possible, because the uncertainties of a march are

considerable, and the lighter the load the less handicapped is the carrier when he meets difficulties. The other loads are distributed to the carriers according to the importance of the load and the ability of the carrier to convey it.

If there is a good headman of the carriers, he will attend to these matters better than the European can.

It is best for the European to travel last; he can then be certain that no load is left behind, and, should any accident happen to a carrier, the European will soon come up to the place and can decide what is best to be done.

Most Europeans on foot, without hammocks, will find ten miles a day a fair average march.

When one's clothes get wet on a march in the rains, the best plan, if the rain is still falling, is to make a fire under a shed and spread them on sticks above it, at a sufficient height to avoid blackening them with smoke. A sheet of corrugated iron, if obtainable, makes an admirable drying tray.

It is repeated here, as being a matter of prime importance, that **the site of a camp should always be as far as possible from a native town and native children.**

If, therefore, it is necessary to lodge in a native town, ask for the most isolated house that you can find on its borders.

The officer should be prepared to deal with the more common cases of sickness among carriers. They are particularly liable to get their feet cut with jagged pieces of stick, and these wounds should at once be attended to, for fear that the germ of lockjaw, which is always present on the ground, should get into the wound. For the method of treatment, see Appendix E. They are also apt to suffer from constipation.

Mosquitoes are kept off to a certain extent by the smoke of a fire, but the safest plan is always to finish the march about 4 o'clock, so that the carriers and the European can eat before dark, and the European can get under the shelter of a mosquito net shortly after 6 o'clock.

A mackintosh cape is useful when marching in the bush in the early morning; it protects the shoulders from the dew dripping off the leaves.

A bush latrine can be made by digging a hole and placing across it horizontally, at a convenient height from the ground, a thick bough, supported at each end beyond the hole by means of Y-shaped branches. If necessary, it should be roofed in.

Care must be taken to prevent thefts of Government money when travelling. The cash boxes should be placed under a trustworthy guard, and should be fastened at night with a padlock and chain to an immoveable object, close to where the European is sleeping, or to his bed.

WORK AND AMUSEMENT.

The working hours in West Africa vary greatly in the different Colonies and Protectorates, but a good plan is to get up early and do as much work as possible before 11 a.m. This leaves the hotter part of the day for what is usually the smaller half of the work.

An early breakfast of, say, a rasher of bacon or an egg, with tea, is usually taken on first getting up in the morning, about 6.15. It is certainly of great importance never to go out without having first eaten at least a biscuit. The principal breakfast takes place as a rule about 11 o'clock, some men have tea about 4, and dinner is usually taken at 7.

A day's work in West Africa is much the same as a fair average day's work in England. If what has to be done is done regularly and with method, an officer will rarely have any serious difficulty in performing his duties.

In out-stations a great deal of customs, post office, and other administrative work is performed by native clerks, who daily make out papers which require for their completion to be examined and signed by the European officer in charge. Such papers should be dealt with at once whenever possible, as if they are put on one side for other work they may have to be dealt with in haste when the mail day arrives, and errors and occasionally defalcations may be overlooked. The errors may or may not have serious consequences in themselves, but in any case they cause needless work to the staff at headquarters and to the officer himself, while if defalcations are overlooked from carelessness the officer may have to make them good out of his own pocket.

Officers who have to travel should always arrange their journeys so that the in-coming and out-going official mails are not neglected.

Twice at least in every month the routine office and storekeeping work should be carefully checked. It is not pleasant for an officer who works hard himself to find himself placed in an unfortunate position through the mistakes or neglect of his native clerk.

Officers will find it absolutely necessary for the proper conduct of business that correspondence registers and other official records should be carefully compiled and kept up to date, and that individual papers are methodically stored, arranged according to subject, number, or date. The Governor and any inspecting officers who may visit the station will ordinarily examine the books and call for correspondence to see that it is properly kept, or for actual use, and any long delay in producing papers called for is a sure sign that there is something wrong with the system or with the way in which it is being worked.

Officers in charge of cash should never leave their offices for the night until they have balanced the cash in the safe against the amount shown in the books.

Government stores should be regularly checked to see that they tally with the entries in the books regarding them.

Official books of record vary much in different places. Officers in charge of districts usually have to keep or superintend the keeping of the following books, or local equivalents for them :—

Correspondence registers, Treasury books, Law books with alterations appended, Court books, Standing Order book, Instructional files, Store books, Prison books, Transport books, Intelligence book, Officer's official diaries.

Every officer should use a diary or some other means of bringing to mind duties which require to be discharged periodically, and things which should be done on particular days.

Games, chiefly golf, bowls, cricket, and tennis, are played in the late afternoon from about half-past four, at all events at the larger stations. Polo is played at Accra and in Northern Nigeria. In any case Europeans should always take brisk exercise every day equal at least to a two-mile walk.

After a walk or games men are apt to sit down in the open air to smoke and talk. But the practice of sitting after sunset in the open air without protection from mosquitoes is dangerous, because the evening is the very time when the *Anopheles* mosquitoes are most active, and therefore when malaria is most readily contracted. The evening should, if practicable, be spent in a house, room, or verandah, which has been made mosquito-proof.

THE RETURN TO ENGLAND.

Shortly after leaving the Coast, particularly after leaving Sierra Leone, the north-east trade winds are met, and the liability of men returning from the tropics to contract chills when exposed to these winds is very great. They should be careful not to sit on deck in the light clothing that people are accustomed to wear in West Africa.

A man with a few malarial germs in his system may very easily induce their multiplication by contracting a slight chill, and so these germs (which had he exercised care would probably have become innocuous during his leave) may be the cause of serious illness upon the voyage. Accordingly heavier clothing should be worn when on board ship from the day of embarkation. The regular dose of quinine should be continued all the way home, and for six months afterwards, in order to kill off any malarial germs which might otherwise multiply.

Even though he has had no fever on the Coast, a man must not think that he is safe from fever when he leaves the place of infection. The malaria parasites contracted in Africa are not left behind when the African coast fades away on the horizon. They may live in the body for over two years after the return to Europe. Ignorance or neglect of this important fact has caused much sickness and not a few deaths. The majority of physicians who practise in tropical medicine in England are agreed that they see, case for case, severer cases of fever in England than they ever did abroad.

It is therefore a matter of paramount necessity to *have warm clothing* during the voyage home and in

England for some months, and to take quinine regularly every day during the voyage, and for at least six months in England.

To sum up:—

(1) Be careful of the change of diet when first getting on to the ship.

(2) Live regularly.

(3) Do not remain on deck after sunset without putting on an overcoat.

(4) Gradually put on thicker clothing as required

(5) Avoid draughts and chills.

(6) Continue the regular use of quinine on the voyage home, and for six months after leaving Africa.

APPENDIX A.

OUTFIT.

All officers are recommended to provide themselves with the following articles :—

	Approximate Price. £	s.	d.
Mosquito net	0	13	6
White pith sun hat, with puggaree ...	0	14	6
White umbrella, lined	0	4	0
Large kettle or camp saucepan, to hold at least five pints, for boiling water...	0	6	0
Lantern, to burn candles or vegetable oil*	0	5	0
A few Medicines, &c., as described on page 44	1	10	0
Two cases of provisions, at £1. 15s. each†	3	10	0
The most recent map, or maps, of the Colony or Protectorate to which they are proceeding, say	0	5	0
Total	£7	8	0

Mosquito Net.—An illustration of a good pattern is given opposite page 22. The net is a most important item of outfit, and careful attention should be given to the following details. The material *must* be double for about 18 inches above the bed to protect the limbs of the sleeper from being bitten through the net. The part of the net which is tucked under the mattress may usefully be strengthened with calico or other stuff to prevent it from being torn. The top of the net should be made of the same material as

* Lord's wind-proof lamp to burn kerosene, though more expensive, is specially recommended for Northern Nigeria.

† Not necessary for officers going to and remaining at Freetown, Axim, Sekondi, Cape Coast, or Accra, nor for any officers going to Lagos.

the sides, and not of calico as is often the case. The net should be white, in order that mosquitoes may be more readily seen when brushing down its inner sides. It should be fitted with rings and cords, so that it may be suspended from the roof.

In order that the air inside may remain fresh, the net should be as large as possible, and should not be in the shape of a bell or an inverted V, but have a flat top.

It is a disputed point whether the material of the net should be ordinary mosquito netting, or some closer material such as book muslin, cheese cloth, or butter muslin. The advantage of the closer materials is that they afford complete protection from every insect, including the annoying sand-fly, but sometimes they are found to exclude fresh air to an undesirable degree. If ordinary mosquito netting is chosen, there should be about 24 meshes to the inch, and the 16-mesh nets commonly supplied should be avoided.

Camp Outfit.—Medical and military officers, all officers going to Southern or Northern Nigeria, and all officers whose duties may require them to travel, should also take out—

	Approximate price. £	s.	d.
Berkefeld pump filter, with stirrup and two spare candles, in tin case ...	2	15	6
"Compactum" camp bed	1	5	0
Cork mattress	0	8	0
Camp table and camp chair or deck chair	0	12	0
Three blankets	0	15	0
Spare mosquito net (not necessary for Lagos)	0	13	3
Bucket canteen for two persons ...	1	1	0
Bath, round, of green rot-proof canvas	0	8	9
India-rubber boots, reaching to the knees, not lined with felt	0	16	0
Two waterproof sheets, about 8 ft. by 6 ft.	1	13	0
Carried forward	£10	7	6

	Approximate price. £	s.	d.
Brought forward	10	7	6
30 yards of muslin, for making houses mosquito proof	0	17	6
Hammer and nails for attaching the muslin	0	1	6
Water bottle for marches, vulcanite, felt-covered	0	8	6
Small compass	0	5	0
Three air-tight uniform cases, with name of officer painted on, say	3	0	0
Total	£15	0	0

All clothing must be packed in air-tight uniform cases for travelling.

Special attention should be paid to making up the load which is to contain the bed, mattress, blankets, and mosquito net. These can be packed in a waterproof sheet or waterproof hold-all, or better in an air-tight uniform case or a "Wolseley" valise.

Two Jaeger blankets and a Jaeger sheet may be substituted for the three blankets. Pillow cases should be taken. The bucket canteen has a lid which makes a good wash-hand basin.

Among sundries useful to travellers, a small mincing machine for preparing tough meat, a "Sparklet" syphon and "Sparklets," and a shot gun and cartridges, may be specially mentioned.

Clothing.—With regard to clothing, several flannel tennis or Khaki drill suits, an old serge or tweed suit, and a light waterproof are required, and also an overcoat for use chiefly on the voyages. The seams of the waterproof must be sewn and not stuck together. Waistcoats are not worn except on the voyages, but kummerbunds are useful. Dress clothes are not required in Northern Nigeria,

but officers of the higher grades going to other parts of West Africa should take out a dress suit, with dinner jacket.

Plenty of thin summer woollen underclothing should be taken out, and also heavy underclothing for the voyages.

It is unwise to wear cotton next to the skin, and a flannel shirt, or linen or cotton shirt with woollen undervest, should be worn. Shirts, vests, and drawers should, when possible, be changed once every day, and at least eight of each are needed. Shirts with turn-down collars are suitable. Needles, thread, buttons, &c., will be wanted for repairs.

Two pairs of stout brown leather boots are recommended, and dubbin should not be forgotten. For the bush, boots should be well nailed. Mosquito boots should be bought at Grand Canary or on the Coast. No walking shoes should be taken, as they do not protect the ankles against mosquitoes, and jiggers readily get into them.

Miscellaneous.—All officers should take out towels, blankets, sheets (if used), pillow and pillow cases, and, except for Southern Nigeria, crockery, cutlery, table linen, saucepans, frying pan, and kitchen cloths.

Good watches should not be taken as they are likely to be spoiled.

The Royal Geographical Society's "Hints to Travellers" (15s. net) contains useful information as to equipment, surveying, natural history, ethnology, photography, &c.

Northern Nigeria.—Officers going to Northern Nigeria must also take saddlery and horse requisites, suited to ponies not usually exceeding 14 hands, riding breeches and gaiters, and Canon Robinson's simplified Haúsa Grammar.

They may also take a tin case to hold up to 65 lbs. *weight*, instead of 50 lbs. as elsewhere, and officers of the

Political Department and others who will travel are recommended to take one such tin case, and also two tin cases to hold 35 lbs. weight. A drip filter, in addition to the pump filter, is often useful.

Officers of the Political and Medical Departments, and others whose work may involve their travelling in the interior of Northern Nigeria, are also required to provide themselves with a brown leather belt, ammunition pouch, holster, and lanyard, and a revolver of ·455 bore (to take Government ammunition).

In Northern Nigeria a shot gun with about 500 cartridges (say 100 No. 2 for geese, 200 No. 3 or 4 for guinea-fowl, &c., and 200 No. 5 for partridges, &c.) will be found almost indispensable if an officer is quartered in the bush. Each 100 cartridges should be soldered in tin. A small bore single shot carbine is good enough for the smaller antelope. For the larger antelope and dangerous game a larger bore is more effective, but so very few opportunities occur of hunting the latter that expensive double-barrel rifles of large bore are seldom used.

MEDICINES, &c.

	£	s.	d.
Bi-hydrochloride of Quinine, 500 tablets of 5 grains each	0	15	0
Sulphate of Soda, in crystals, 1 lb. weight	0	0	6
Bottle of Chlorodyne, ½-oz.	0	0	7½
Boracic Acid, 2 lbs. weight	0	0	9
Bi-carbonate of Soda, 2 ozs.	0	0	5
* Clinical Thermometer (to be used only if there is no doctor at the Station)...	0	1	6
* 6 First Aid Dressings	0	4	6
* Alum, for clearing water, 1 lb. ...	0	0	1½
Permanganate of Potash, ½ lb. ...	0	0	9
Vaseline, for protecting knives and razors from rust, 1 lb.	0	0	10
Bottles, and packing in strong hinged box, say	0	5	0
Total	£1	10	0

The sulphate of soda is intended for use as an aperient, in doses of one heaped-up teaspoonful. Other aperients may be substituted if preferred. Directions for the use of the rest of the drugs are given in Appendix E and other parts of this pamphlet.

Euquinine is a new and tasteless form of quinine which may be substituted for the bi-hydrochloride. It is less soluble than the latter. The doses are the same as for the bi-hydrochloride. The tablet or tablets should be crushed, the powder swallowed and a drink of water taken. It is understood that five grain tablets of euquinine are at present only obtainable to order. Their cost is about £2 10s. for 500, *i.e.*, considerably more than that of the bi-hydrochloride.

Persons going to the larger towns, and not likely to travel, can omit the articles marked with an asterisk.

PROVISIONS.

It will usually be found much cheaper to take out the less perishable kinds of provisions from England rather than to buy them locally. Good fresh provisions when obtainable are much preferable to tinned, but almost every officer will require some of the latter. Except in the cases mentioned in the foot-note on page 39, it is suggested that at least two cases of provisions should be taken out, and many officers going to bush stations will find it expedient to take out a much larger supply. Provisions should be packed in cases with hinged lids and a padlock and key, and not in nailed-up cases. Suitable cases are obtainable ready packed. Some of the cases weigh 60 lbs., but this will not be too heavy for a strong carrier, although 50 lbs. are better. The cost is about £1. 15s. per case.

The following list of articles for one case will serve as a guide to those who prefer to select their own provisions :—

- ½-lb. tin Tea.
- ½-lb. tin Coffee.
- ¼-lb. tin Cocoa.
- 7 small tins "Ideal" Milk.
- 1 bottle Saccharine Tabloids, ½ grain each.
- 1 2-lb. tin Rolled Oats.
- 2 ½-lb. tins Sardines in oil or Tomato Sauce.
- 3 tins assorted Potted Meats.
- 2 1-lb. tins of Marmalade.
- 6 4-oz. tins of Jam.
- 2 ½-lb. tins of Butter.
- 2 1-lb. tins of Plain Biscuits.
- 1 bottle Salt.
- 1 ½-lb. tin Pepper.
- 1 ¼-lb. tin Mustard.
- 2 boxes Sparklets, if Sparklet Syphon is taken.
- 6 tins assorted Soups.
- 1 ½-lb. tin Curry Powder.
- 1 2-lb. tin Rice.
- 1 1-lb. tin Beef Dripping.
- 4 tins assorted Vegetables.
- 2 tins Fruit.
- 1 bottle Pickles.
- 1 small bottle Worcestershire Sauce.
- 2 1-lb. tins Tongue.
- 3 tins assorted Tinned Meats or Army Rations.
- 1 bottle Lime Juice.
- 1 Tin-opener.

This will more than suffice for a week even where nothing can be got locally, and ordinarily, where some fresh provisions are obtainable, it will last a good deal longer.

MEDICINES, &c.

	£	s.	d.
Bi-hydrochloride of Quinine, 500 tablets of 5 grains each	0	15	0
Sulphate of Soda, in crystals, 1 lb. weight	0	0	6
Bottle of Chlorodyne, ½ oz.	0	0	7½
Boracic Acid, 2 lbs. weight	0	0	9
Bi-carbonate of Soda, 2 ozs.	0	0	5
* Clinical Thermometer (to be used only if there is no doctor at the Station)...	0	1	6
* 6 First Aid Dressings	0	4	6
* Alum, for clearing water, 1 lb. ...	0	0	1½
Permanganate of Potash, ½ lb. ...	0	0	9
Vaseline, for protecting knives and razors from rust, 1 lb.	0	0	10
Bottles, and packing in strong hinged box, say	0	5	0
Total	£1	10	0

The sulphate of soda is intended for use as an aperient, in doses of one heaped-up teaspoonful. Other aperients may be substituted if preferred. Directions for the use of the rest of the drugs are given in Appendix E and other parts of this pamphlet.

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Persons going to the larger towns, and not likely to [illegible] can omit the articles marked with an asterisk.

PROVISIONS.

It will usually be found much cheaper to take out the less perishable kinds of provisions from England rather than to buy them locally. Good fresh provisions when obtainable are much preferable to tinned, but almost every officer will require some of the latter. Except in the cases mentioned in the foot-note on page 39, it is suggested that at least two cases of provisions should be taken out, and many officers going to bush stations will find it expedient to take out a much larger supply. Provisions should be packed in cases with hinged lids and a padlock and key, and not in nailed-up cases. Suitable cases are obtainable ready packed. Some of the cases weigh 60 lbs., but this will not be too heavy for a strong carrier, although 50 lbs. are better. The cost is about £1. 15s. per case.

The following list of articles for one case will serve as a guide to those who prefer to select their own provisions :—

- ½-lb. tin Tea.
- ¼-lb. tin Coffee.
- ½-lb. tin Cocoa.
- 7 small tins "Ideal" Milk.
- 1 bottle Saccharine Tabloids, ½ grain each.
- 1 2-lb. tin Rolled Oats.
- 2 ¼-lb. tins Sardines in oil or Tomato Sauce.
- 3 tins assorted Potted Meats.
- 2 1-lb. tins of Marmalade.
- 6 4-oz. tins of Jam.
- 2 ½-lb. tins of Butter.
- 2 1-lb. tins of Plain Biscuits.
- 1 bottle Salt.
- 1 ½-lb. tin Pepper.
- 1 ¼-lb. tin Mustard.
- 2 boxes Sparklets, if Sparklet Syphon is taken.
- 6 tins assorted Soups.
- 1 ½-lb. tin Curry Powder.
- 1 2-lb. tin Rice.
- 1 1-lb. tin Beef Dripping.
- 4 tins assorted Vegetables.
- 2 tins Fruit.
- 1 bottle Pickles.
- 1 small bottle Worcestershire Sauce.
- 2 1-lb. tins Tongue.
- 3 tins assorted Tinned Meats or Army Rations.
- 1 bottle Lime Juice.
- 1 Tin-opener.

This will more than suffice for a week even where nothing can be got locally, and ordinarily, where some fresh provisions are obtainable, it will last a good deal longer.

APPENDIX B.

FURNITURE.

In Sierra Leone, Government quarters are not furnished, but furniture can be purchased in Freetown.

In Lagos, Government quarters are furnished with the following articles :—

SITTING ROOM.

Dining Table.
Dinner Wagon.
Six Bentwood Chairs (good quality).
Sideboard.
Writing Table.
Book shelf.

VERANDAH.

Madeira Sofa.
Two Occasional Tables.
Two Foot Mats.
Two Madeira Chairs.
Two Bentwood Chairs.

BED-ROOM.

Bed Complete with Mosquito-curtain, Mattress and two Pillows.
Washstand with Crockery complete and Tooth Glass and Bottle.
Two Wardrobes with shelves.
Two Bentwood Chairs.
Dressing Table and Looking-glass.
Bath Tub, Towel Horse.

PANTRY.

Table.
Shelves for Crockery.
Meat Safe.
Filter.

KITCHEN.

Cooking Stove.
Wall Cupboard.
Two Tables.

EARTH CLOSET.

Pan complete.
Sandbox and Scoop.

In the Gold Coast, also, Government quarters are, with a few minor exceptions, supplied with furniture similar to that in Lagos, but mosquito nets are generally not provided by the Gold Coast Government.

In Southern Nigeria, all the Government houses are fully furnished and provided for Messes at Government expense.

In Northern Nigeria, simple furniture is provided for permanent quarters. The houses contain lamps, and the cook-houses contain stoves.

Officers have to supply themselves with everything else *they may require in their* quarters.

APPENDIX C.

CIVIL UNIFORM FOR WEST AFRICA.

The following Field Dress has been sanctioned for Administrative and Departmental Officers :—

Khaki (greenish) or blue Norfolk Jacket, of drill, flannel, or serge; military pattern with plain brass, leather or Colonial buttons, and without shoulder straps or piping. The collar of the jacket to be either stand-up or rolled.

Calvin cord or khaki drill knickerbockers or breeches.

Khaki putties or brown leather gaiters. (Khaki or blue trousers of similar material to the jacket may be worn in place of knickerbockers or breeches.)

Brown leather shooting boots.

Wolseley or pith helmet.

Puggarees of the colour chosen by each Colony or Protectorate. (Silk for senior officers; linen for junior officers.)

Khaki cap (optional) of the new military pattern, with band of the colour chosen by each Colony or Protectorate.

A band or braid, of the colour chosen by each Colony or Protectorate, of material 3 inches wide in the case of senior officers, and 1½ inches wide in the case of junior officers, to be worn three inches above the bottom of both sleeves.

Special shirts (optional), either white tennis or field service shirts of the latest pattern.

Officers drawing salaries of £400 a year and over are regarded for this purpose as senior officers; those drawing salaries of over £200 and less than £400 a year are considered junior officers. Subordinates engaged under agreement, and subordinates drawing salaries not over £200 a year, are not entitled to wear the uniform.

In the Protectorates of Southern Nigeria and Northern Nigeria the use of the field dress is compulsory for all civil servants entitled to wear it. In the four Colonies any civil servant entitled to wear the field dress may do so, and the Governor may order it to be worn by any class or classes of civil servants if he thinks that this would be desirable.

The following are the distinctive colours of the several Colonies and Protectorates :—

Gambia	Crimson.
Sierra Leone ...	Not yet settled.
Gold Coast	Old Gold.
Lagos and Southern Nigeria	Olive Green.
Northern Nigeria ...	French Grey.

The above uniform, which is peculiar to West Africa, does not take the place of the civil uniform prescribed by H.M. the King for the service of the Crown throughout the Empire, which is worn by Governors, High Commissioners, the Heads of the principal Departments, Provincial and Divisional Commissioners, and certain other senior officers, upon suitable occasions.

APPENDIX D.

COOKING RECIPES.

To make Bread.—(1) If there is no cooking range it is necessary to make an oven. A good oven can be made by taking clay and erecting on a slab of clay a hollow dome of clay like a bee-hive; the clay arch can be supported by first taking a few twigs and bending them into half circles and planting both ends in the ground, one on each side of the slab of clay that is to form the floor.

A gap is left at one side to put the bread in, and a small hole is left at the top so as to allow the fire inside to burn.

When ready, the fire is drawn and the dough is placed in the hot oven, the hole at the top is closed and the gap also closed by a piece of tin, the tin being covered over with clay.

The walls of an oven so made should be about three inches thick.

(2) To make a medium-size loaf, take 1½ lbs. of flour and mix it with half a pint of palm wine that has been collected about ten hours before; let the dough thus made stand in a warm place for an hour, then mix it with half a pound more flour and let it stand again for about 15 minutes before placing it in the oven.

Baking powder and water can be used instead of palm wine. Good flour should bind when compressed in the hand, and bread made from it should gain about 30 per cent. in weight.

In boiling a joint the meat should be plunged into boiling water for five minutes to harden the outside and to retain all extractives, &c., in the interior; the rest of the cooking should be carried out at a lower temperature, *i.e.*, the joint should be allowed to simmer. Give a quarter of an hour for each pound weight and a quarter of an hour over.

To make broth the process is reversed; the meat is cut in fine pieces, and put in cold water and very slowly brought up to the boil, so that all the "goodness" can dissolve out into the water and form broth.

In roasting a joint allow a quarter of an hour for each pound weight.

To stew meat chop up 1 lb. of beef into 10 pieces, put in a saucepan with one teaspoonful of salt and one of sugar, add a sliced middle-size onion and quarter of a pint of water; put on fire for 10 minutes until a thin gravy is formed; add one ounce of flour, stir for a few minutes, add three pints of water; let the whole simmer until the meat is soft.

Beef if killed as suggested will take three hours. Goat, about two hours.

In all cooking processes meat loses 20 to 30 per cent. of its weight.

Chickens can be roasted or boiled. They may also be cut up into four pieces, each piece being beaten soft with a stick and then fried as a chop; or without beating, the pieces can be stewed and served with white sauce.

Or a chicken can be spatch-cocked, *i.e.*, cut straight down the back, turned flat and fried. Or it can have all the bones and flesh removed from the skin, the flesh scraped from the bones and chopped up, mixed with onions, pepper, &c., and replaced in the skin and then roasted.

Natives have many other methods of serving chickens.

Mutton soup. Half a pound of mutton should make a pint. Cut the meat into pieces, add two ounces of vegetables, half a teaspoonful of salt, a pinch of sugar and pepper, half a tablespoonful of rice or barley and let it simmer for two hours; skim off the fat which rises. A similar soup can be made from goat's meat.

Plum pudding, one pound of flour, ¾ lb. of sultana raisins, ¾ lb. of lard, two tablespoonfuls of treacle or sugar, *add half a pint of water.* Mix all together, put in a cloth, *tie tightly, boil for four hours.*

To boil rice, add a quarter of a pound of rice to 3 pints of boiling water and boil gently for three quarters of an hour; strain off the water and keep the rice near the fire in the pot so that it can dry.

The water can be drunk as rice water; if a lime be squeezed into it and sugar added, a refreshing drink can be made.

Yams and pawpaw are cut into pieces and boiled until soft when felt with a fork.

Plain white sauce for pawpaw, &c., take ½ oz. of butter, ¾ oz. of flour, ¼ pint of milk, pepper, salt, a few drops of lime juice.

Melt the butter in a pan, mix the flour thoroughly with it, add the milk, and cook well, stirring frequently. Finally add the juice of the lime, &c.

The chief **native dishes** are—

Ground nut soup.

Black soup.

Palm oil chop (a liking for this has usually to be acquired).

APPENDIX E.

TREATMENT OF DISEASES AND ACCIDENTS.

Officers should, of course, not attempt to treat themselves or others except when the help of a medical man cannot be obtained. The following notes are intended as a guide when no medical assistance can be had.

Malarial Fever.—Chilliness or shivering, with pains in the back and legs, with or without sickness, indicate the necessity of taking the temperature with the thermometer. If, with these symptoms, the temperature is much above 98·4°, the patient is probably suffering from an attack of fever. He should go to bed, take fifteen grains of quinine and a hot drink, and wrap up well in blankets. This may cut the fever short, but usually the temperature rises to, or is at first found to be, over 103°. It the bowels are not regular one heaped-up teaspoonful of Sulphate of Soda in water should be taken before or after the quinine. Quinine should be taken every four hours until the fever falls, but each dose except the first should be of five grains only.

A temperature of, say, 99°, if unaccompanied by a feeling of illness, does not necessarily indicate fever, as many people have a slight rise of temperature when quite well. Men should avoid the practice of taking temperature when they have no feeling of illness.

The usual course of the fever is that the patient after lying in bed for a few hours sweats profusely, and his temperature falls to normal, or near it; if this occurs at night he will probably fall asleep. Next morning he had better take ten grains of quinine, and afterwards five grain doses every four hours during the day, if the temperature rises again. If the temperature does not rise he need not take a second dose after the ten grain dose until evening, when he should take five grains.

On the following days five grains should be taken in the morning and five at night for a week, and thereafter, if there is no more fever, the usual regular dose.

If vomiting is a prominent symptom, take the patient to a doctor. In this case the quinine swallowed is not absorbed and quinine must be administered by other means.

Should the temperature rise to 106° cold sponging must be resorted to. A friend should stop all draughts, have the sick man gently lifted on to a waterproof sheet, keeping his body as horizontal as possible, as he may faint if he sits up, and sponge him all over with cool water, while a boy fans him, until the temperature taken in the lower bowel is 102°. As an alternative the body may be covered with thin towels soaked in cool water, and fanned rapidly, the towels being frequently changed. Water to sponge a patient can be made several degrees cooler by adding to it one or two handfuls of salt. Brandy, vinegar, or Florida water, are valuable additions to the plain water, as they assist evaporation and thus help to lower the temperature. Should the temperature rise afterwards to 104° in the armpit, sponging must again be resorted to. There must be no half measures about cold sponging, as the patient's life is in imminent danger if the temperature does not come down.

Suppose the temperature does not again go above 105° but continues between 103° and 105°, or thereabouts, in spite of his taking five grains of quinine every four hours, he should take fifteen grains of quinine twenty hours after the first dose of fifteen grains. If this does not at least reduce the temperature considerably, the patient should be taken to a doctor when this would be quicker than sending for a doctor to come to the patient.

The diet in malarial fever should consist of broth, milk and water, mashed biscuit, or bread and milk.

Here is an account of an actual case: The patient felt "*seedy*" all the morning, and had some headache,

dryness of the mouth and skin, and pains on moving in his chair. However he still tried to do his work.

At
11. 0 a.m. had no appetite for breakfast; drank a soda and whisky and lay down for a sleep.
2. 0 p.m went back to his office.
2.30 p.m. felt so ill that he went to bed. At
3. 0 p.m. temperature in the armpit was 103°. He took five grains of quinine. At
4. 0 p.m. temperature was 102·4°. At
5. 0 p.m. temperature was 104°, skin dry. Patient given twenty grains of quinine. At
6. 0 p.m. temperature was 101°, and patient was sweating. He then fell asleep, and was sleeping at
10. 0 p.m. and had a fair night. Next day at
7. 0 a.m. temperature was 103°. He was given 15 grains of quinine. At
8. 0 a.m. the temperature was 102°. At
9. 0 a m. temperature still 102°. At
10. 0 a.m. 101·4°. At
11. 0 a.m. he was given five grains of quinine, and temperature was 101°. At
3. 0 p.m. 99·4° and he was given five grains of quinine. At
7. 0 p.m. temperature was 98°. At
10. 0 p.m. he was given five grains of quinine, temperature still 98. Next morning, *i.e.*, the third day of the disease, at
7. 0 a.m. his temperature was 98·2°; he was given ten grains of quinine and temperature remained normal all day. At night patient was given five grains of quinine. The temperature never rose again. The patient continued to take five grains of quinine night and morning for a week.

The patient got out of bed on the fourth *day.*

This case occurred in an officer who did not take quinine systematically as a preventive; had he done so he would probably not have had fever. Two other officers living close by who took quinine every day did not get fever. Again, had he taken fifteen grains of quinine at first instead of five the temperature would probably not have gone up to 104°.

In grave forms of malarial fever it is absolutely necessary that the quinine, if administered by the mouth, should be taken dissolved in water and not in pill or tablet form.

Diarrhœa.—Diarrhœa is often due to the eating of something injurious, which it is necessary to remove; it is therefore best to begin treatment with a mild purgative. Half a teaspoonful of sulphate of soda in water will serve the purpose. After the sulphate of soda has acted, chlorodyne in doses of from five to ten drops may be taken three times a day in about two tablespoonfuls of water. If the diarrhœa continues it is best to consult a doctor.

Avoid fruits, highly seasoned or rich dishes, and palm oil chop. Take soups, boiled chicken, milk puddings, eggs, bread and milk, and milk and water. Arrowroot is especially good in diarrhœa.

As precautions against diarrhœa see that all drinking water is filtered and then boiled; see that the filter is kept clean; avoid eating too much fruit or indigestible dishes; and prevent chills at night by covering the abdomen with a blanket. If predisposed to diarrhœa wear a cholera belt.

Dysentery.—Dysentery is indicated by the presence of blood and slime in the motions, with diarrhœa and griping, but streaks of blood alone on the stools may be due to piles. Dysentery is always serious, and if there is not a quick recovery it is best to travel to some place where medical treatment can be had.

In the meanwhile it is good treatment to take small doses of sulphate of soda to wash out the poison, a quarter of a teaspoonful every two hours in water. A quarter of a tea-*spoonful is* half what is contained in a teaspoon full only

to the edge (not a heaped-up teaspoonful). The food must mainly consist of rice-water or milk. Milk and water, milk puddings, rice water, white of eggs beaten up into a froth and then mixed with milk, water and a little sugar, are all useful. Arrowroot may be used. The disease should not be allowed to become chronic.

The precautions against dysentery are the same as those against diarrhœa.

Blackwater Fever.—Cases of blackwater fever usually occur only in persons who have previously suffered from several attacks of malarial fever.

If a man passes dark water (urine) of the colour of stout and has rigors and a rise of temperature, he is probably suffering from this disease. He should go to bed at once, avoid all draughts and chills, and drink plenty of fluids.

In every case of blackwater fever it is advisable that the help of a medical man should be obtained as soon as possible, and the patient should be taken to a doctor when this would be quicker than sending for a doctor to come to the patient.

The patient's food should be the same as in malarial fever. Milk and water is the best habitual drink during this illness. Abundance of it should be drunk with a view to flushing the kidney and washing the poison out of the system.

If the temperature rises to 106° cold sponging must be resorted to as in malarial fever. Should vomiting come on and continue, an attempt should be made to inject two tablespoonfuls of milk and half a pint of water every two hours into the lower bowel by means of a syringe.

A man may in blackwater fever die:—

1. On account of the severity of the disease.
2. Because the blood gets poor and scanty.
3. Because the temperature rises too high.
4. Because the patient sits up when too weak, and as a result faints and never recovers.
5. The kidneys may get choked with black debris or inflamed and so stop secreting water.

For the above five conditions the following treatment should be applied :—

1. Take as much boracic acid as can be heaped up on a threepenny piece every hour in water.
2. Drink plenty of fluids.
3. Cold sponging.
4. The patient must keep lying down.
5. Flannels should be wrung out in hot water, covered with a large, dry, warm bath towel and applied to the loins; or (better when possible) an india-rubber bottle of hot water should be applied.

To wring out a hot flannel, place the flannel on a towel, put the middle of towel and flannel in a washhand basin, letting the ends of the towel hang outside, pour on hot water, the flannel can then be wrung out by twisting the ends of the towel in opposite ways.

Indigestion.—Indigestion may often be relieved by taking in two tablespoonfuls of water as much bicarbonate of soda as can be heaped up on a shilling, three times a day, about a quarter of an hour before meals.

Jiggers.—Jiggers are most plentiful in sandy places.

When a jigger is boring into the skin a sensation of tickling is felt, and an intelligent native should be asked to remove the jigger.

He must first wash his hands thoroughly with soap and water, then rinse them with boracic solution. (Directions for making boracic solution are given at the end of this section). The European meanwhile should rub some boracic solution over the place where the jigger is and prepare a stout needle by passing the point two or three times through the flame of a match or candle. He should wash off any black that may be on the needle with boracic solution and then let the native pick out the jigger with the needle. If the native is given plenty of time the operation will be almost painless.

A small piece of cotton wool or lint soaked in boracic solution should be placed over the place from which the jigger has been removed.

Do not neglect jiggers or you may give yourself much needless suffering.

Tumbo Fly.—A very troublesome and painful boil is caused by this fly depositing a maggot under the skin. It can be distinguished from an ordinary boil by a peculiar intermittent pricking feeling which is caused by the maggot wriggling. On looking at the apex in the swelling the head can be seen moving gently. This complaint is alarming but is not serious, and the maggot can be expelled by squeezing or, better still, by pulling it out with a fine pair of forceps. The small circular opening which is left should then be dressed with boracic lotion or carbolic ointment.

Prickly Heat.—Use carbolic soap daily in the bath. After drying yourself, rub all over with fresh undiluted lime juice and allow to dry on the skin. The underclothing should be changed and washed frequently.

Slight Wounds.—Small cuts should be washed with cold water which has been boiled, then well sprinkled with boracic acid powder and covered with a first aid dressing or a piece of rag which has been boiled and dried in the sun.

Wounds which bleed profusely should have a piece of gauze from a first aid dressing or a portion of boiled rag pressed against them tightly enough to control the bleeding, and should subsequently be dressed like smaller cuts.

Bites of Poisonous Snakes.—Tie immediately a handkerchief twisted into a rope round the limb *above* the wound, and make the handkerchief grip the limb tightly by passing a piece of stick between the two and twisting the stick round. Keep it so by securing the stick to the limb. Make several cuts where the fangs went in, removing the *actual fang marks.* Wash the part well with strong *Condy's fluid, or rub* in crystals of permanganate of

potash, or, failing these, use warm boracic solution. Finally loosen the handkerchief and dress as usual for small wounds.

Poisoned Arrow.—If the wound is in a limb, tie a handkerchief as for snake bite. In any case syringe out the wound with warm boracic solution and use the syringe to suck out liquids from the bottom of wound.

Broken Limbs.—If a limb is believed to have been broken it should have two sticks gently tied to it, one on each side, so as to fix the joints above and below. The injured man should not be moved until this has been done. The seriousness of a fracture is much increased if, by rough handling, the bones are caused to penetrate the skin.

To make Boracic Solution.—Put a heaped-up teaspoonful of boracic acid powder into a half-pint tumbler and add four teaspoonfuls of warm water, mix well, then fill the tumbler with warm water—water which has boiled and has cooled somewhat. The solution is then ready for use. It can be used either hot or cold.

RAINFALL (INCHES).—1903.

	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
Gambia, Bathurst ...	0	0	0	0	0	5·9	7·1	35·9	4·1	4·1	0	0
Sierra Leone, Freetown	·5	0	1·1	4·8	12·9	18·1	36·9	53·7	29·9	11·4	3·8	·2
Gold Coast, Accra * ...	3·5	3·8	·1	1·2	1·0	3·1	2·0	·8	0	2·2	2	0
Lagos, Lagos	0	3·4	1·9	7·4	3·1	21·6	8·8	·7	11	6·9	4·1	1·2
S. Nigeria, Calabar ...	1·5	3·5	·9	10·1	8·9	21·5	34·3	27·3	11·8	10	9·6	1·4

* NOTE.—The Gold Coast west of Accra and inland parts of the Colony have a heavier rainfall.

TEMPERATURE OF THE AIR IN THE SHADE.—1903.

		Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
Bathurst	Highest	93	100	100	93	88	89	89	89	89	91	92	89
	Lowest	56	61	61	64	67	69	68	70	67	67	63	57
Freetown	Highest	95	95	98	95	94	92	88	87	90	91	93	93
	Lowest	71	73	71	69	70	68	68	62	67	68	66	70
Accra ...	Highest	81	87	88	87	85	82	79	79	79	83	86	86
	Lowest	63	65	67	67	65	65	69	70	71	73	73	73
Lagos ...	Highest	92	93	93	92	92	89	88	84	85	88	91	91
	Lowest	68	69	70	70	74	69	69	70	68	70	70	71
Calabar	Highest	89	92	92	94	94	91	87	84	87	89	90	90
	Lowest	62	60	70	70	70	69	67	67	67	66	65	69

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